

Annexes to the IPER

1. Lumbar support, comprising
an archable supporting element (1-3), and
an adjustment mechanism (8-17) for adjusting a curvature of the archable supporting element (1-3) into a first curvature direction, in which the archable supporting element (1-3) forms a convex supporting surface, and into a second curvature direction, in which the archable supporting element (1-3) forms a concave supporting surface,
whereby the adjustment mechanism (8-17) is configured in such a manner that for adjusting the curvature of the archable supporting element (1-3) into the first curvature direction it exerts a traction force onto a back of the archable supporting element (1-3), while for adjusting the curvature of the archable supporting element (1-3) into the second curvature direction it exerts a traction force onto a front of the archable supporting element (1-3), the adjustment mechanisms (8-17) comprising first adjustment means (8-13) having a tension member (9) engaging the back of the archable supporting element (1-3) for adjusting the curvature of the archable supporting element (1-3) into the first curvature direction, and second adjustment means (14-17) having a tension member (15) engaging the front of the archable supporting element (1-3) for adjusting the curvature of the archable supporting element (1-3) into the second curvature direction.

2. Lumbar support according to Claim 1, characterized in that the lumbar support is configured in such a manner that the first and second curvature directions are aimed substantially opposite to one another out of a plane, which is defined by the archable supporting element (1-3) in the unarched condition.

3. Lumbar support according to Claim 1 or 2, characterized in that the tension member (9) of the first adjustment means (8-13) engages a back of at least one

end section of the archable supporting element (1-3) for the curvature of the archable supporting element (1-3) into the first curvature direction, while the tension member (15) of the second adjustment means (14-17) engages a front of at least one end section of the archable supporting element (1-3) for the curvature of the archable supporting element (1-3) into the second curvature direction.

4. Lumbar support according to any one of the preceding Claims, characterized in that the first adjustment means comprise a Bowden cable arrangement (8, 9).

5. Lumbar support according to Claim 4, characterized in that a sleeve (8) of the Bowden cable arrangement of the first adjustment means is supported on a first end section of the archable supporting element (1-3), whereby a wire (9) displaceably mounted in the sleeve (8) is guided to a second end section of the archable supporting element (1-3), in order to exert an adjustment force onto the archable supporting element (1-3) for the curvature into the first curvature direction.

6. Lumbar support according to Claim 5, characterized in that the wire (9) of the Bowden cable arrangement of the first adjustment means is guided back via the reversing means (11) to the first end section of the archable supporting element (1-3) and is coupled there with the first end section, whereby the reversing means (11) are coupled with the second end section of the archable supporting element (1-3).

7. Lumbar support according to Claim 6, characterized in that the reversing means comprise a reversing roller (11).

8. Lumbar support according to Claim 6 or 7, characterized in that the reversing means (11) are pivotably coupled with the second end section of the archable supporting element (1-3).

9. Lumbar support according to any one of the preceding Claims, characterized in that the second adjustment means (14-17) comprise a Bowden cable arrangement.

10. Lumbar support according to Claim 9, characterized in that a sleeve (14) of the Bowden cable arrangement of the second adjustment means is supported on a first end section of the archable supporting element (1-3), whereby a wire (15) displaceably mounted in the sleeve (14) is guided from the first end section of the archable supporting element (1-3) to a second end section of the archable supporting element (1-3), in order to exert an adjustment force onto the archable supporting element (1-3) for the curvature into the second curvature direction.

11. Lumbar support according to Claim 10, characterized in that the wire (15) of the Bowden cable arrangement of the second adjustment means runs from the first end section of the archable supporting element (1) firstly in the longitudinal direction of the archable supporting element (1-3), is then guided through an opening in the archable supporting element (1-3) along the front of the archable supporting element (1-3) to the second end section of the archable supporting element (1-3), in order from there to run along the front of the archable supporting element (1-3) through a further opening in the archable supporting element and along the back of the archable supporting element (1-3) in the longitudinal direction of the archable supporting element (1-3) back to the first end section of the archable supporting element (1-3), where the wire (15) is coupled with the first end section of the archable supporting element (1-3).

12. Lumbar support according to Claim 11, characterized in that the wire (15) of the Bowden cable arrangement of the second adjustment means (14-17) is guided via reversing means (17) on the front of the archable supporting element (1-3).

13. Lumbar support according to any one of the preceding Claims, characterized in that the archable supporting element comprises a first supporting section (1) and a second supporting section (2), which are connected via at least one longitudinal bar (3) running in the longitudinal direction of the archable supporting element.
14. Lumbar support according to Claim 13, characterized in that the at least one longitudinal bar (3) is configured in such a manner that it is flexible in the longitudinal direction of the archable supporting element.
15. Lumbar support according to Claim 13 or 14, characterized in that the at least one longitudinal bar (3) in the longitudinal direction of the archable supporting element has elevations and depressions in alternating succession, which in each case run in the transverse direction of the at least one longitudinal bar (3), in order to cause a flexibility in the longitudinal direction of the archable supporting element.
16. Lumbar support according to any one of Claims 13-15, characterized in that the archable supporting element comprises at least two longitudinal bars (3) situated at a distance from one another in the lateral direction of the archable supporting element, which in each case connect the first supporting section (1) with the second supporting section (2).
17. Lumbar support according to any one of Claims 9-12 and Claim 16, characterized in that the wire (15) of the Bowden cable arrangement of the second adjustment means (14-17) runs through the one opening in the archable supporting element and then along the front of the one longitudinal bar (3) to the second end section of the archable supporting element, and that the wire (15) of the Bowden cable arrangement of the second adjustment means (14-17) runs from the second end section of the archable supporting element along the front of the other longitudinal bar (3) to the other opening in the archable supporting element.

18. Lumbar support according to any one of the preceding Claims, characterized in that actuating means (23) are provided for operating the adjustment mechanism.

19. Lumbar support according to Claim 18, characterized in that common actuating means (23) are provided for the first adjustment means (8-13) and the second adjustment means (14-17) of the adjustment mechanism.

20. Lumbar support according to Claim 19, characterized in that the common actuating means (23) are configured in such a manner that an adjustment of the first adjustment means (8-13) for increasing a curvature of the archable supporting element (1-13) into the first curvature direction at the same time leads to an adjustment of the second adjustment means (14-17) for reducing the curvature of the archable supporting element (1-3) into the second curvature direction and vice versa.

21. Lumbar support according to any one of the preceding Claims, characterized in that the archable supporting element (1-3) is displaceably mounted in its longitudinal direction along guidance means (4), and that a further adjustment mechanism (18-23) is provided for adjusting the adjustable supporting element (1-3) along the guidance means (4).

22. Lumbar support according to Claim 21, characterized in that the further adjustment mechanism (18-23) comprises a Bowden cable arrangement.

23. Lumbar support according to Claim 22, characterized in that the Bowden cable arrangement comprises a first Bowden cable (18, 19) for adjusting the archable supporting element (1-3) into a first direction along the guidance means (4) and a second Bowden cable (21, 22) for adjusting the archable support element (1-3) into a second direction opposite to the first direction along the guidance means (4).

24. Lumbar support according to Claim 23, characterized in that a sleeve (18) of the first Bowden cable and a sleeve (21) of the second Bowden cable is in each case supported on mountings (5, 6) coupled with the guidance means (14), while a wire (19) of the first Bowden cable and a wire (22) of the second Bowden cable are in each case coupled with the archable support element (1-3).

25. Lumbar support according to Claim 24, characterized in that the wire (19) of the first Bowden cable or the wire (22) of the second Bowden cable is coupled via a spring element (20) with the archable supporting element (1-3).

26. Lumbar support according to any one of Claims 23-25, characterized in that common actuating means (24) are provided for the first Bowden cable (18, 19) and the second Bowden cable (21, 22) in such a manner that tensioning the first Bowden cable at the same time causes a relaxing of the second Bowden cable and vice versa.